

**CLAIMS**

That which is claimed is:

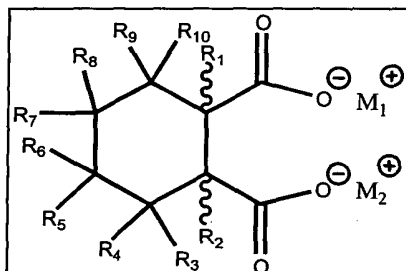
1. An organic nucleating agent which induces b-axis orientation within a test homopolymer polypropylene formulation to a degree in which a relative angle (ND) of greater than 13.5 is detected, wherein the unnucleated test homopolymer polypropylene formulation exhibits a density of about 0.9 g/cc, a melt flow of about 12 g/10 min, a Rockwell Hardness (R scale) of about 90, a tensile strength of about 4,931 psi, an elongation at yield of about 10%, a flexural modulus of about 203 kpi, an Izod impact strength of about 0.67 ft-lb/in, and a deflection temperature at 0.46 mPa of about 93°, and wherein said formulation comprising said combination is extruded then molded into plaques having dimensions of about 51 mm X 76 mm X 3.00 mm, wherein the total amount of said organic nucleating agent present within said test homopolymer is at most 0.25% by weight.
2. A thermoplastic composition comprising the organic nucleating agent as defined in Claim 1.
3. The thermoplastic composition of Claim 2 wherein said thermoplastic is a polyolefin.
4. The polyolefin composition of Claim 3 wherein said polyolefin is a polypropylene.

5. An organic nucleating agent which induces a stiffness to impact balance ratio (S/I) of greater than 4.5 within a test homopolymer polypropylene formulation, wherein the unnucleated test homopolymer polypropylene formulation exhibits a density of about 0.9 g/cc, a melt flow of about 12 g/10 min, a Rockwell Hardness (R scale) of about 90, a tensile strength of about 4,931 psi, an elongation at yield of about 10%, a flexural modulus of about 203 ksi, an Izod impact strength of about 0.67 ft-lb/in, and a deflection temperature at 0.46 mPa of about 93°, and wherein said formulation comprising said combination is extruded then molded into plaques having dimensions of about 51 mm X 76 mm X 3.00 mm, wherein the total amount of said organic nucleating agent present within said test homopolymer is at most 0.25% by weight.
6. A thermoplastic composition comprising the organic nucleating agent as defined in Claim 5.
7. The thermoplastic composition of Claim 6 wherein said thermoplastic is a polyolefin.
8. The polyolefin composition of Claim 7 wherein said polyolefin is a polypropylene.
9. A polypropylene article comprising at least one cyclic dicarboxylate nucleating agent, wherein said polypropylene comprises at least a fraction of homopolymer and exhibits a b-

axis orientation, wherein said at least one nucleating agent exhibits very low hygroscopicity, and wherein said at least one nucleating agent induces a crystallization temperature of at least 116°C within a test homopolymer propylene formulation, wherein the unnucleated test homopolymer propylene formulation exhibits a density of about 0.9 g/cc, a melt flow of about 12 g/10 min, a Rockwell Hardness (R scale) of about 90, a tensile strength of about 4,931 psi, an elongation at yield of about 10%, a flexural modulus of about 203 ksi, an Izod impact strength of about 0.67 ft-lb/in, and a deflection temperature at 0.46 mPa of about 93°, and wherein said formulation comprising said combination is extruded then molded into plaques having dimensions of about 51 mm X 76 mm X 3.00 mm, wherein said peak crystallization temperature is measured by differential scanning calorimetry in accordance with a modified ASTM Test Method D3417-99 at heating and cooling rates of 20°C/minute, wherein the total amount of said organic nucleating agent present within said test homopolymer is at most 0.25% by weight.

10. The polypropylene article of Claim 9 wherein said nucleating compound is a metal salt of the compound conforming to Formula (I)

(I)

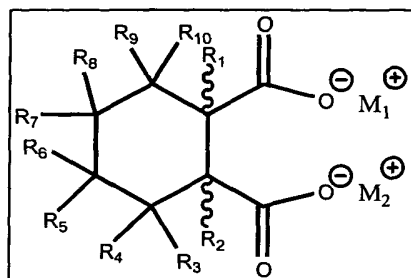


wherein M<sub>1</sub> and M<sub>2</sub> are the same or different and are selected from at least one Group I or Group II metal cation, and wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, and R<sub>10</sub> are either the same or different and are individually selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>9</sub> alkyl, wherein any two vicinal or geminal alkyl groups may be combined to form a carbocyclic ring of up to six carbon atoms, hydroxy, C<sub>1</sub>-C<sub>9</sub> alkoxy, C<sub>1</sub>-C<sub>9</sub> alkyleneoxy, amine, and C<sub>1</sub>-C<sub>9</sub> alkylamine, halogens, and phenyl.

11. The article of Claim 10 wherein each of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, and R<sub>10</sub> are hydrogen and M<sub>1</sub> and M<sub>2</sub> are combined as a single calcium ion.

12. The article of Claim 8 wherein said nucleating compound is a metal salt of the compound conforming to Formula (I)

(I)



wherein  $M_1$  and  $M_2$  are the same or different and are selected from at least one Group I or Group II metal cation, and wherein  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ , and  $R_{10}$  are either the same or different and are individually selected from the group consisting of hydrogen,  $C_1$ - $C_9$  alkyl, wherein any two vicinal or geminal alkyl groups may be combined to form a carbocyclic ring of up to six carbon atoms, hydroxy,  $C_1$ - $C_9$  alkoxy,  $C_1$ - $C_9$  alkyleneoxy, amine, and  $C_1$ - $C_9$  alkylamine, halogens, and phenyl.

13. The article of Claim 12 wherein each of  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_5$ ,  $R_6$ ,  $R_7$ ,  $R_8$ ,  $R_9$ , and  $R_{10}$  are hydrogen and  $M_1$  and  $M_2$  are combined as a single calcium ion.